

Date: Monday, 23/02/2009 10:11:54 AM
 User: Julie Dawson

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : FWD TUBE ASSEMBLY
 Job Number : 45950
 Estimate Number : 10467
 P.O. Number :
 This Issue : 23/02/2009 S.O. No. :
 Prsht Rev. : NC
 First Issue : / / Type : SKIDTUBES
 Previous Run : 44041
 Part Number : D3391021
 Drawing Number : D3391 REV H
 Project Number : N/A
 Drawing Revision : H
 Material :
 Due Date : 10/03/2009 Qty: 1 Um: Each

Written By :

Checked & Approved By :

Comment :

Est. A 05.09.13 New issue KJ/JLM
 Est. B 06.02.10 Dwg rev.D ecn 773 EC
 Est. C 06.05.02 Added inspections EC
 est D 07.03.13 rev F dwg EC
 est E 07.11.07 revG dwg ecn1053P EC verified by: DD
 Est Rev:f ECN 1056 07-11-12 DD verified by: EC
 Est Rev:G 08-09-08 new process (ecn 08-510) DD verified by:EC
 Est Rev:H 08-09-10 revH as per dwg DD verified by:EC
 Est Rev J 09.02.02 added hardware EC verified by: DD

Additional Product

Job Number:



Seq. #:

Machine Or Operation:

Description :

1.0

D6013047

Skidtube Material



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

SKIDTUBE MAT'L

Pick:

Qty

Part Number

Description

Batch

Extrusion

B26547

DP

9-2-23

2.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

Cut extrusion to 46.52 +0.010 -0.020

DP

9-2-23

3.0

BENDING

BENDING MACHINE - SKIDTUBES



Comment: Nc bender

Bend as per Dwg D3391 Using Bend Prog 3391021

DP

9-2-24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 45950

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

4.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 09/02/29 (41)

5.0

HAAS1

HAAS CNC VERTICAL MACHINING #1



Comment: HAAS CNC VERTICAL MACHINING #1

1-Machine as per Folio FA590 Rev. F & Dwg D3391 Rev. H
Identify as D3391-1

2-Deburr

B.A 09/02/29

6.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

B.A 09/02/29

7.0

MILLING CONV.

CONVENTIONAL MILLING MACHINE



Comment: CONVENTIONAL MILLING MACHINE

Drill X1 Aft cap as per Dwg D3391 .1875" dia

CA 05/03/03 (1)

8.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

SA 09/03/03 (1)

9.0

QC8

SECOND CHECK



Comment: SECOND CHECK

S 09/03/05 (44)

10.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill float bag holes as per Dwg D3391 using DT8798(Do not open tow cap holes to finish size)
(ONLY DRILL HOLES MARKED "A")

2-Drill Remaining two holes for tow cap using DT 8819 Locating off of .1875" holes drilled in previous step

3-Open tow cap holes to .208" as per Dwg D3391

4-Open Tow Ring hole to .640" as per Dwg D3391

5- open float bag holes 0.328" and counter sink as per dwg D3391

AWM 7-3-9

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3391-021 PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA: S Date: 09/04/15

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR: <u>45950</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
9/3/5	# 5.0	0.667" slot is cut to 0.711" R.C. it was machined too small at first and in Remachining it became too large.	PL QSI 042 09.03.05	NON CRITICAL REGION R/C AREA IS SUPPORTED BY FWD X-TUBE ACCEPTABLE DEVIATION	K.A 09/03/05		PL QSI 042 09.03.05	

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Drawing Name: FWD TUBE ASSEMBLY

Job Number: 45950

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

6-Deburr & Scribe Batch number Inside aft end.

- AWM 9-3-9

7-Transfer drill D3391-021 with D3391-023

M 9-3-9

11.0

QC5

INSPECT WORK TO CURRENT STEP



20503.10 (1)



Comment: INSPECT WORK TO CURRENT STEP

12.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



AWM 9-3-10



Comment: HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005 4.1

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

(1) M 9-3-10

14.0

SPACER



Comment: Qty: 4.000 Each(s)/Unit Total: 4.0000 Each(s)

SPACER

batch: 5411863

(4)

M 9-3-10

(4)

15.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-instal spacers as per dwg D3391

A/R Magnabond 6398 batch: M 109900

exp. date: 9-3-19

cure time 12hrs. as per QSI015

M 9-3-11

2- grind crossbolt flush

) M 9-3-12

3-back drill crossbolt if necessary

16.0

QC5

INSPECT WORK TO CURRENT STEP



20903.12 (1)



Comment: INSPECT WORK TO CURRENT STEP

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Job Number: 45950

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

17.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING pressure wash 09-04-01 x C *de*
Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

M 110939

START TIME:

3:40

OVEN TEMPERATURE:

320°

FINISH TIME:

4:10

BR

09-04-1

(1)

18.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

09-04-06

(2)

19.0

D3401041

Tow Cap Assembly



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)
Tow Cap Assembly

B 41931

de

20.0

D356413

Wearshoe



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)
Wearshoe

B 45409

de

21.0

D356613

Gasket



Comment: Qty.: 1.0000 Each(s)/Unit Total: 1.0000 Each(s)
Gasket

B 45827

de

22.0

D36721

Phenolic Washer



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)
Phenolic Washer

B 39275

de

23.0

AN3C4A

BOLT



Comment: Qty.: 10.0000 Each(s)/Unit Total: 10.0000 Each(s)
BOLT

M 111279

de

09-04-06 (4)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Job Number: 45950

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

24.0

AN960C10L

washer



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)
washer

1110916

ell

25.0

AELS1032130

INSERT



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)
INSERT

11108606

ell

26.0

AELS1032225

INSERT



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)
INSERT

1119393

ell

27.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1
Identify and Stock
Location: W/O 46808A

ell

28.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: SKIDTUBESS RESOURCE 1
**** install D3591-1 spacer as per DSI9364 ****

ell

09-04-06

(X)

29.0

QC21

FINAL INSPECTION/W/O RELEASE



09/04/13

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



P/C 46808 09/4/9 ① MF 09-04-09

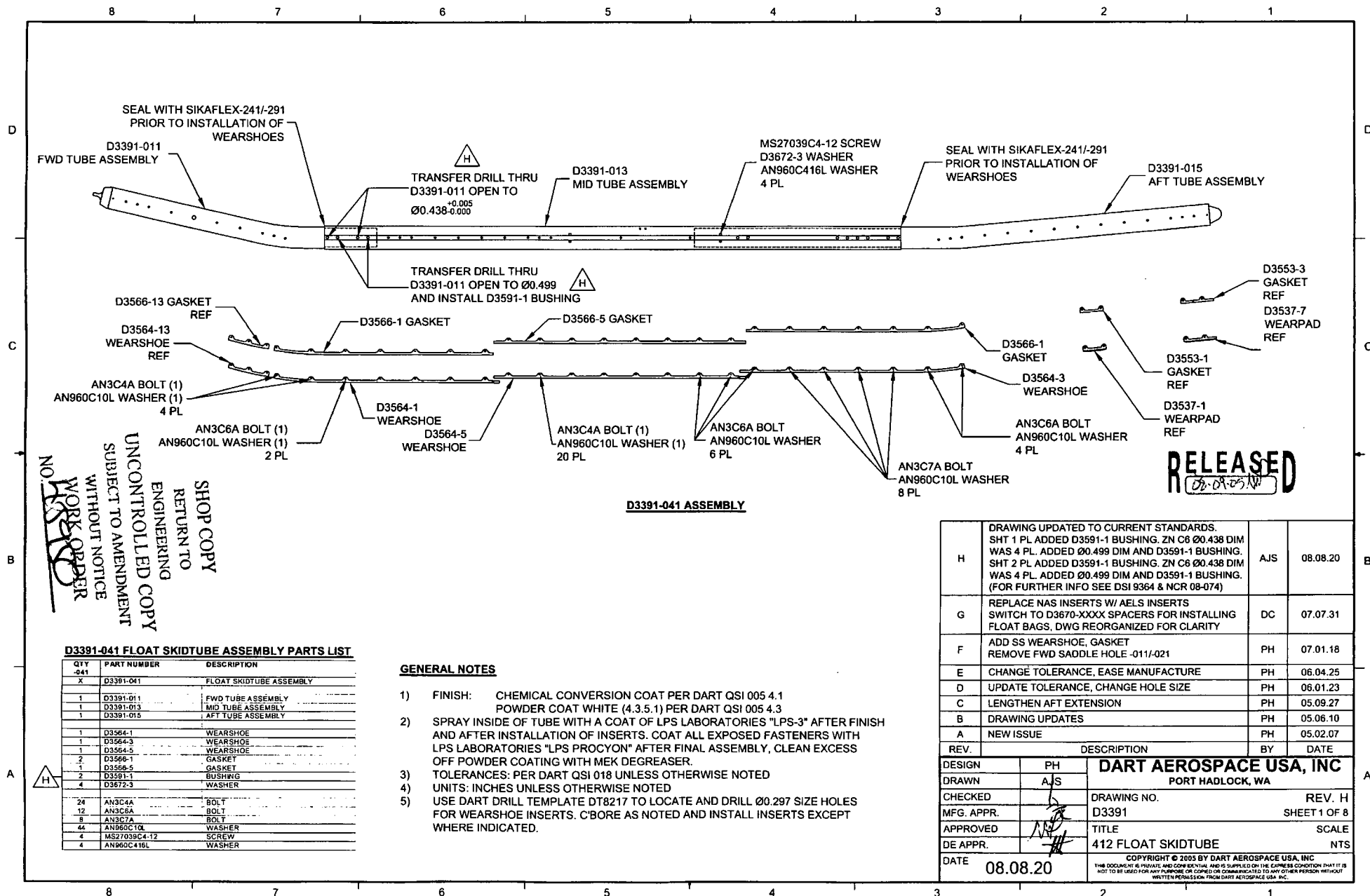
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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

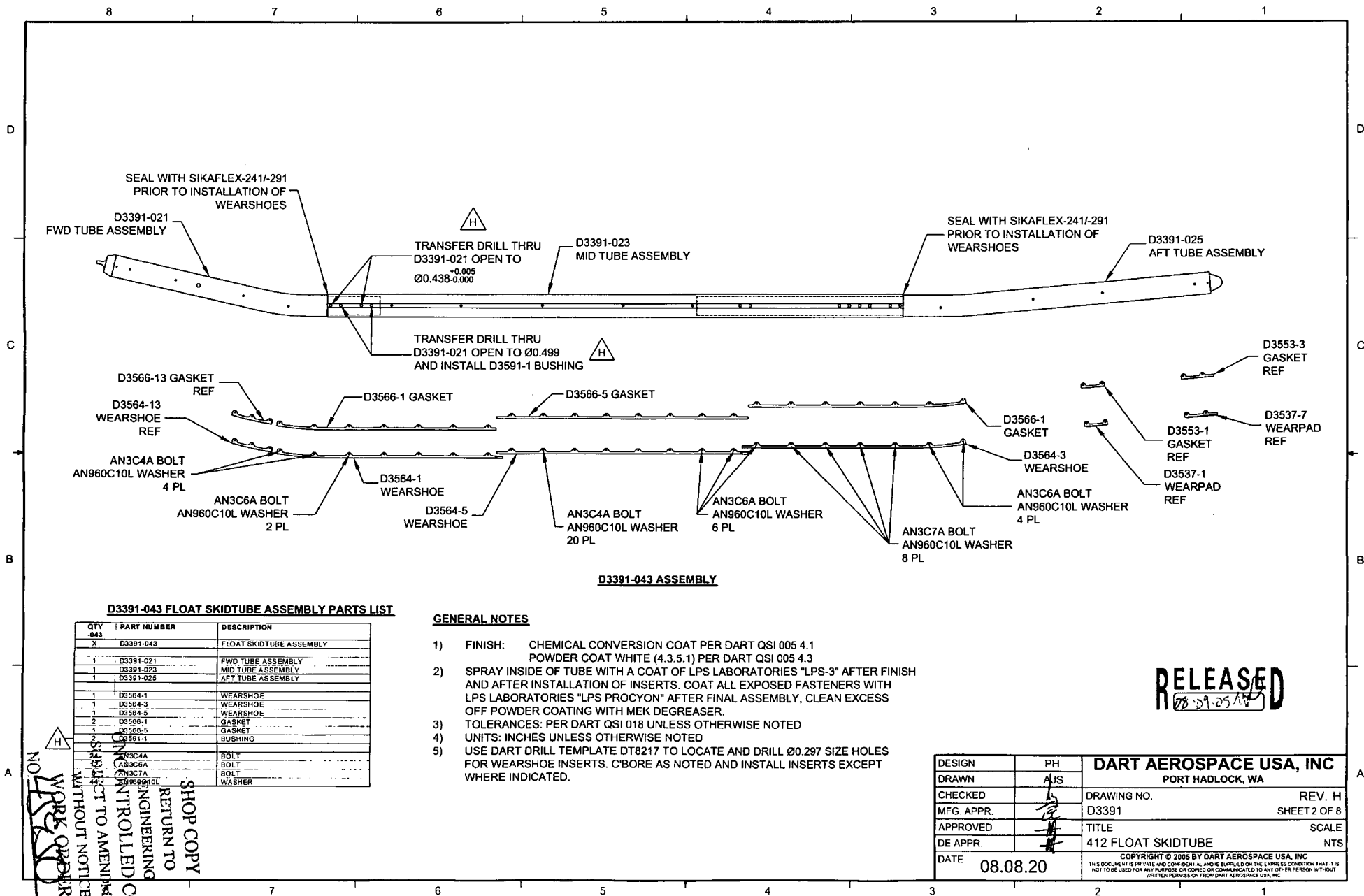
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries





D3391-043 ASSEMBLY

D3391-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	D3391-043	FLOAT SKIDTUBE ASSEMBLY
1	D3391-021	FWD TUBE ASSEMBLY
1	D3391-023	MID TUBE ASSEMBLY
1	D3391-025	AFT TUBE ASSEMBLY
1	D3564-1	WEARSHOE
1	D3564-3	WEARSHOE
1	D3564-5	WEARSHOE
2	D3566-1	GASKET
2	D3566-5	GASKET
1	D3591-1	BUSHING
4	AN3C4A	BOLT
2	AN3C6A	BOLT
8	AN3C7A	BOLT
4	AN960C10L	WASHER

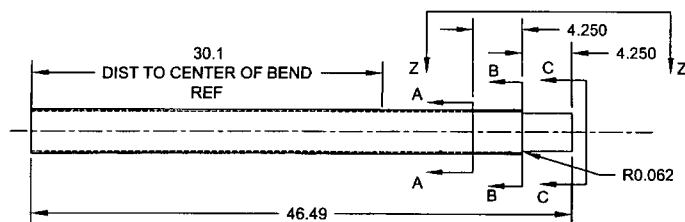
GENERAL NOTES

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY. CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL 0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.

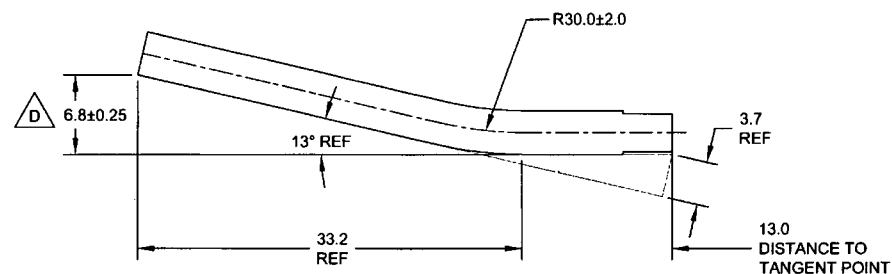
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08-09-25/14

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	AUS	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. H
MFG. APPR.		D3391	SHEET 2 OF 8
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NTS
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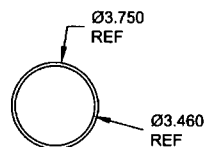
NO. 1754
WORK ORDER
SUBJECT TO AMENDMENT
WITHOUT NOTICE
ENGINEERING
RETURN TO
SHOP COPY



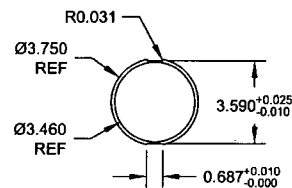
D3391-1 CUTTING DETAIL
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



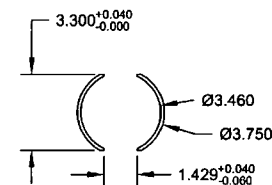
D3391-011/-021 BENDING DETAIL
(MAKE FROM D3391-1)



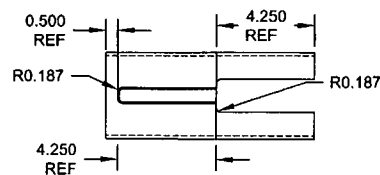
SECTION A-A
SCALE 2X



SECTION B-B
SCALE 2X




SECTION C-C
SCALE 2X

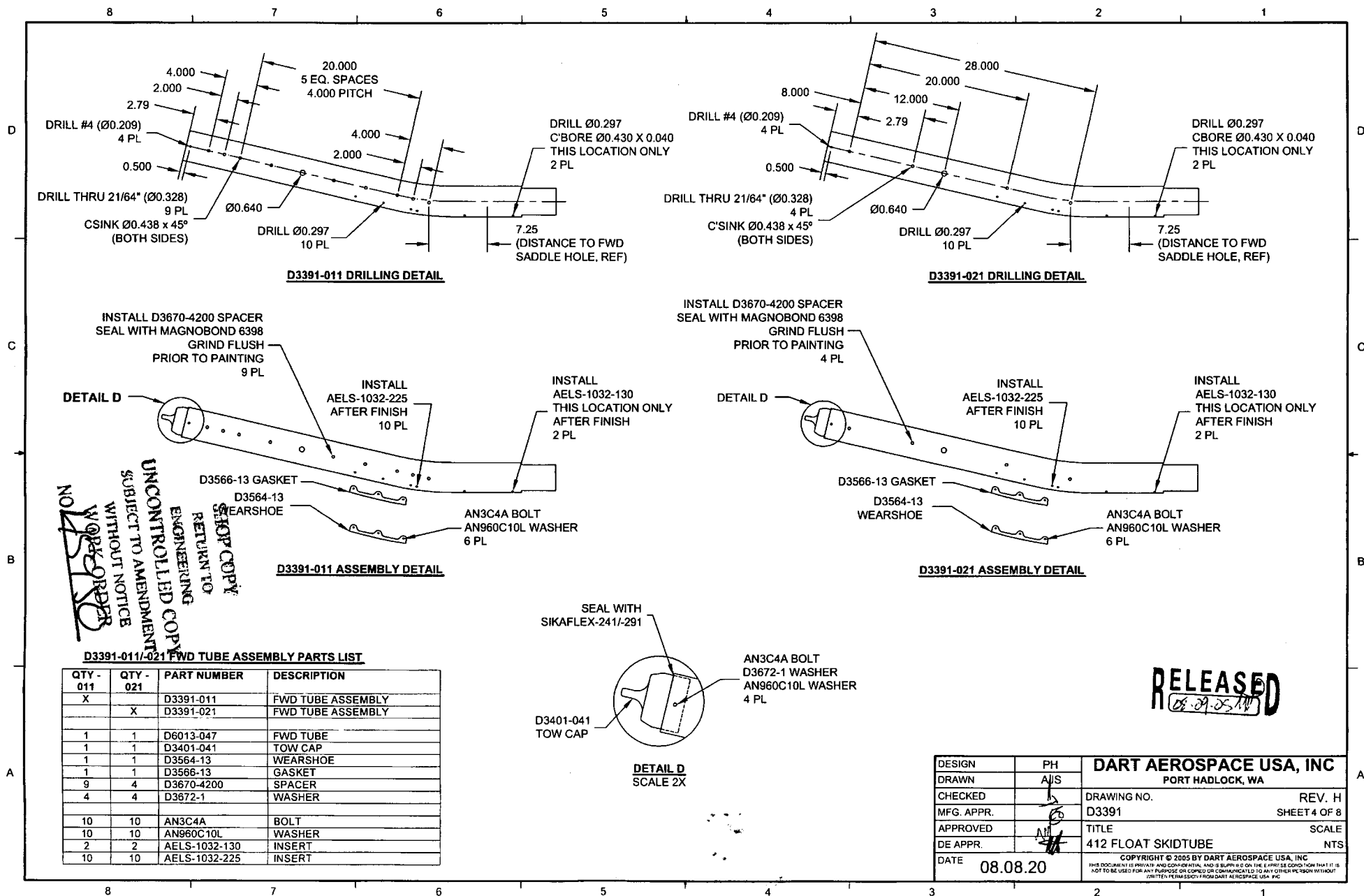


VIEW Z-Z
SCALE 2X

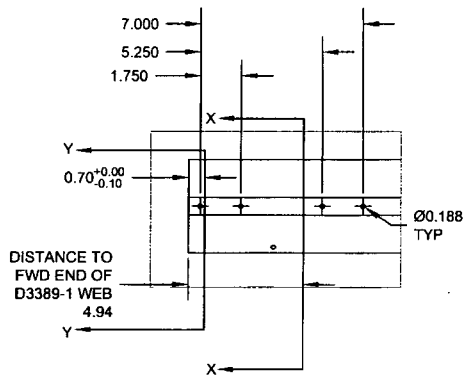
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28 JAN 2007

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WORK ORDER
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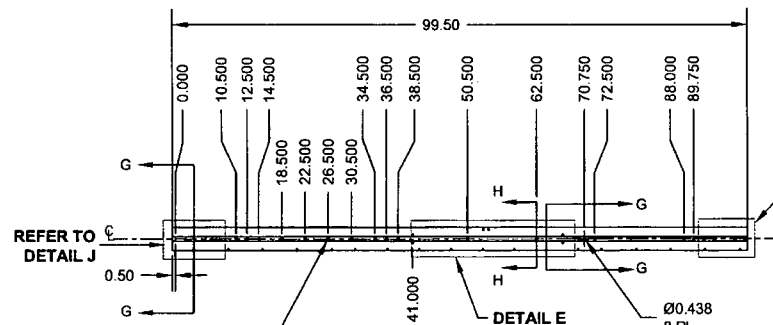


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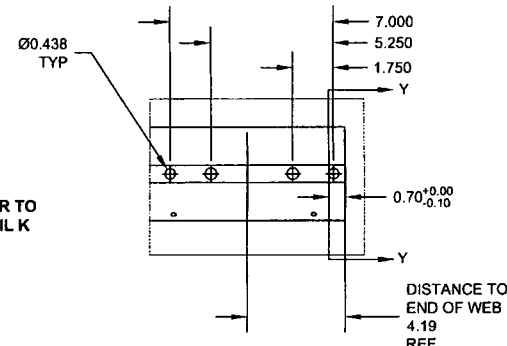
DETAIL J
SCALE 4X

DRILL THRU 21/64" (Ø0.328)
CSINK Ø0.438 X 45° (BOTH SIDES)
12 PL



D3391-013 ASSEMBLY DETAIL

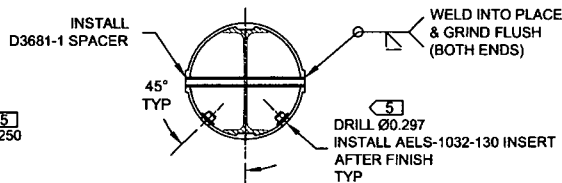
REFER TO
DETAIL K



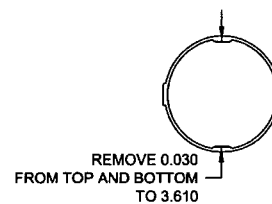
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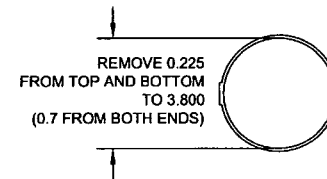
SECTION G-G
SCALE 5X



SECTION H-H
SCALE 5X



SECTION X-X
SCALE 5X

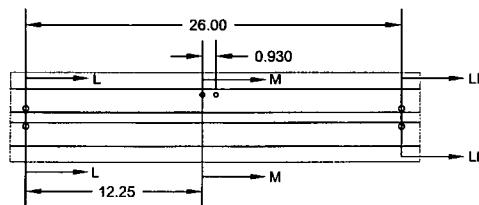


SECTION Y-Y
SCALE 5X

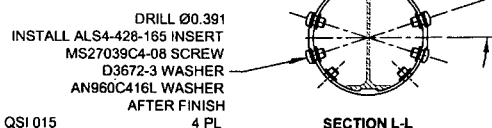
DRILL Ø0.297
INSTALL AELS-1032-130 INSERT
MS27039C1-08 SCREW
D3672-1 WASHER
AN960C10L WASHER
AFTER FINISH
4 PL

D3391-013 MID TUBE ASSEMBLY PARTS LIST

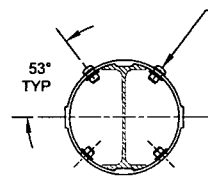
QTY	PART NUMBER	DESCRIPTION
-013		
X	D3391-013	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
4	D3672-1	WASHER
4	D3672-3	WASHER
12	D3681-1	SPACER
24	AELS-1032-130	INSERT
4	ALS4-428-165	INSERT
4	AN960C10L	WASHER
4	AN960C416L	WASHER
4	MS27039C1-09	SCREW
4	MS27039C4-08	SCREW



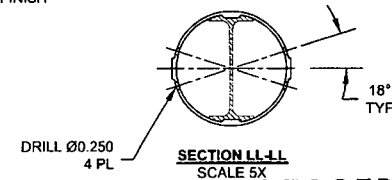
DETAIL E
SCALE NONE



SECTION L-L
SCALE 5X



SECTION M-M
SCALE 5X

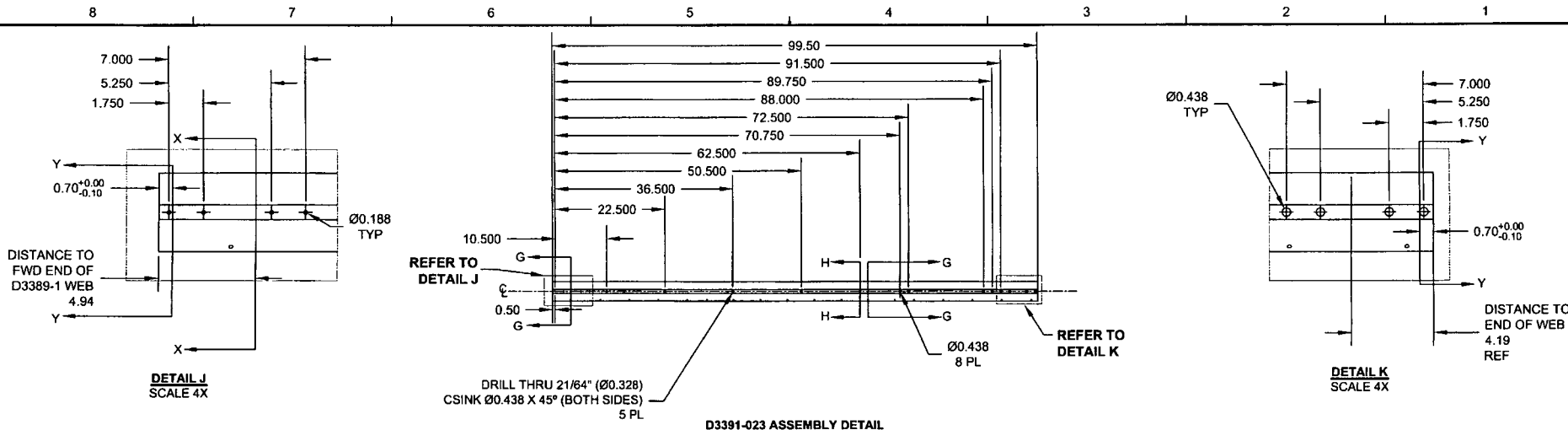


SECTION LL-L
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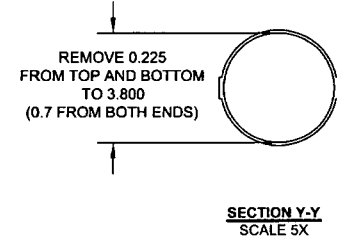
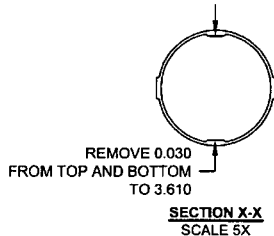
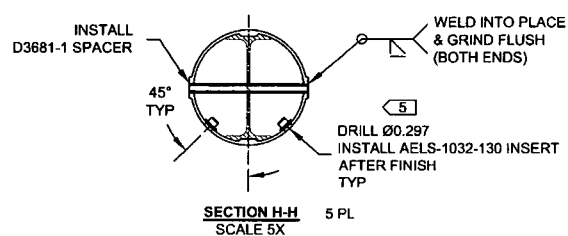
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MFG. APPR.		D3391	SHEET 5 OF 8
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WORK ORDER NO. 45950
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SUBJECT TO AMENDMENT
WITHOUT NOTICE



NO. 25980
WORK ORDER
SUBJECT TO AMENDMENT
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ENGINEERING
RETURN TO
SECTION G-G
SCALE 5X



D3391-023 MID TUBE ASSEMBLY PARTS LIST

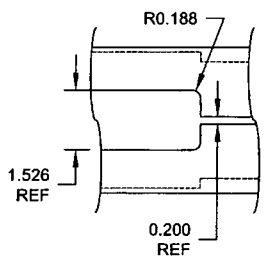
QTY - 023	PART NUMBER	DESCRIPTION
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AELS-1032-130	INSERT

D3391-023 MID TUBE ASSEMBLY
 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER QSI 015
 3) WELDING: PER DART QSI 004

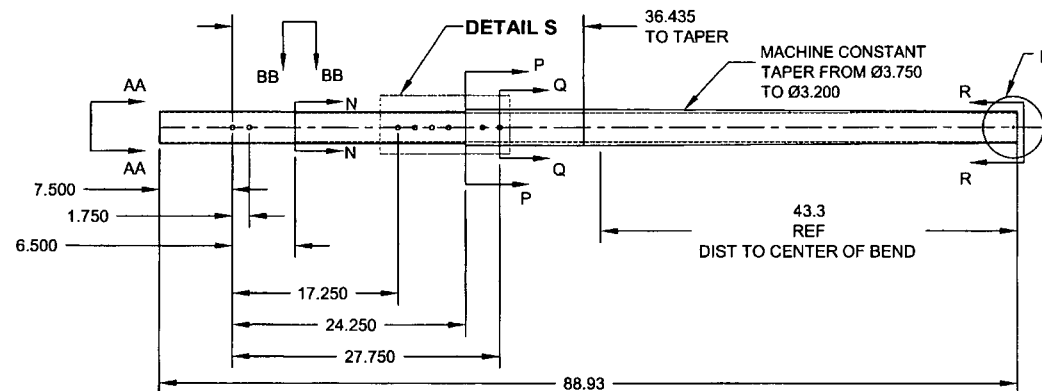
DESIGN		PH	DART AEROSPACE USA, INC	
DRAWN		AS	PORT HADLOCK, WA	
CHECKED			DRAWING NO.	REV. H
MFG. APPR.			D3391	SHEET 6 OF 8
APPROVED			TITLE	SCALE
DE APPR.			412 FLOAT SKIDTUBE	NTS
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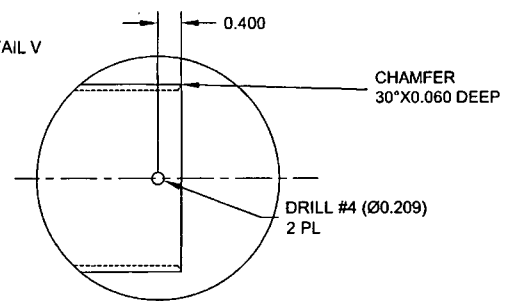
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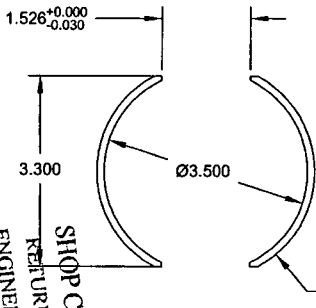
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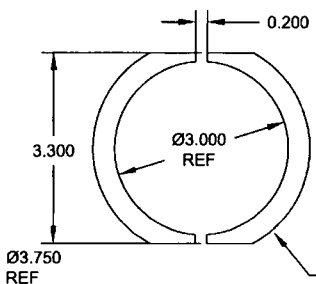
D3391-3 AFT DRILLING AND CUTTING DETAIL
(MAKE FROM D6014-090 SKIDTUBE MATERIAL)



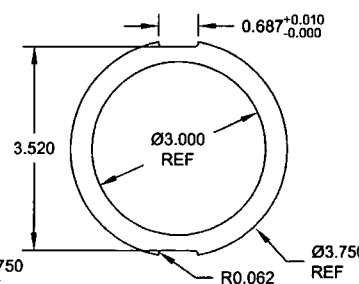
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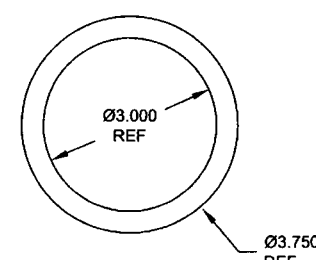
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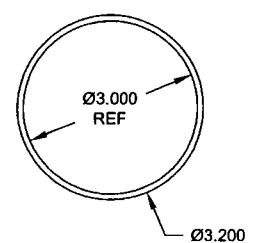
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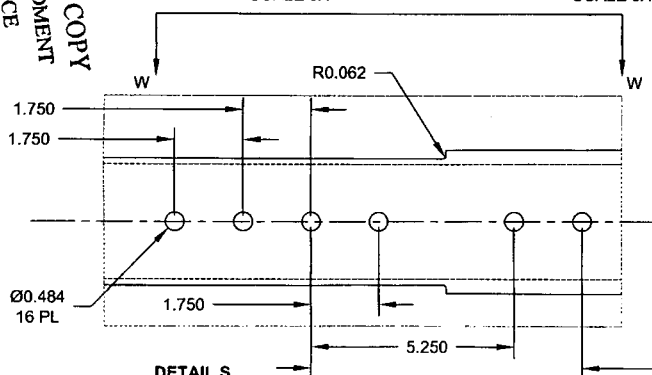
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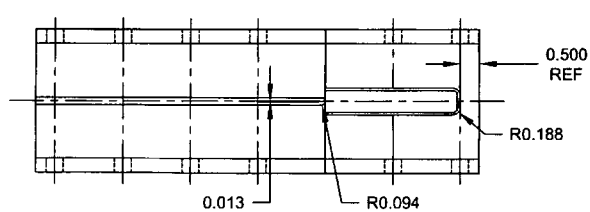
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SECTION R-R
SCALE 6X






DETAIL S
SCALE 4X



VIEW W-W
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